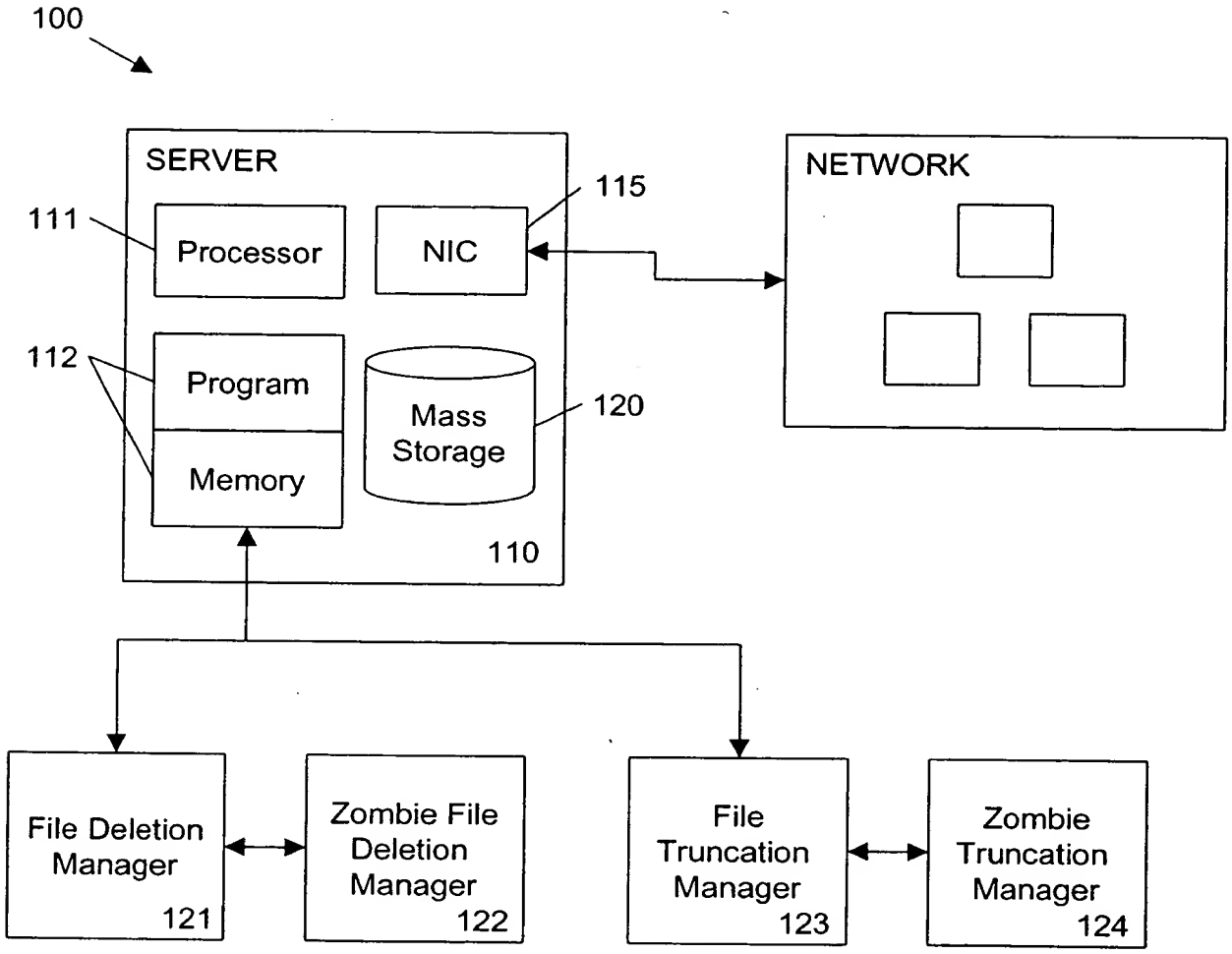
100
SERVER
111
Processor
NIC
115
NETWORK
112
Program
Memory
Mass Storage
120
110
File Deletion Manager
121
Zombie File Deletion Manager
122
File Truncation Manager
123
Zombie Truncation Manager
124

Fig. 1

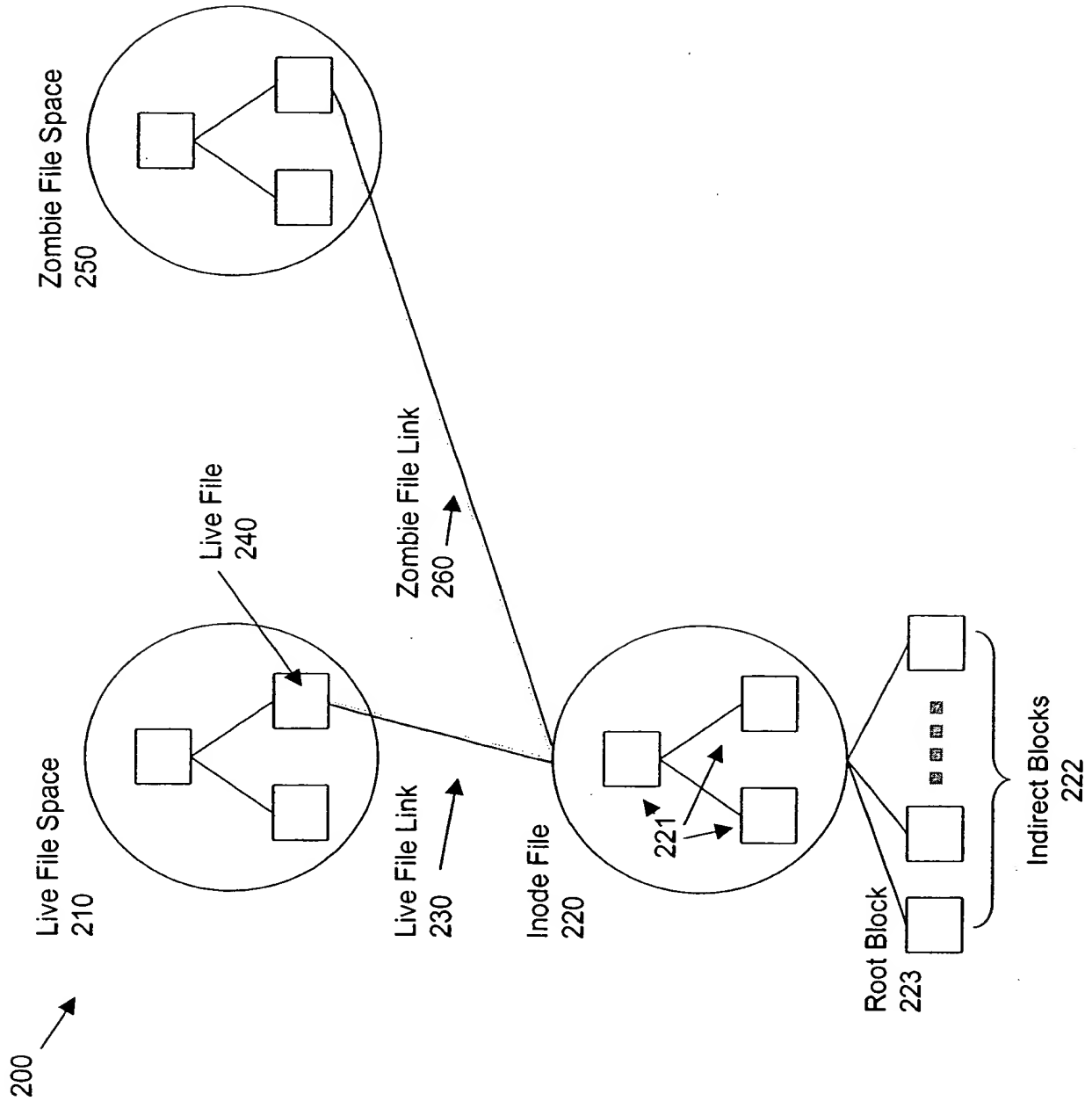
Zombie File Space
250
Live File
240
Zombie File Link
260
Live File Space
210
Live File Link
230
Inode File
220
221
Indirect Blocks
222
Root Block
223
200

Fig. 2

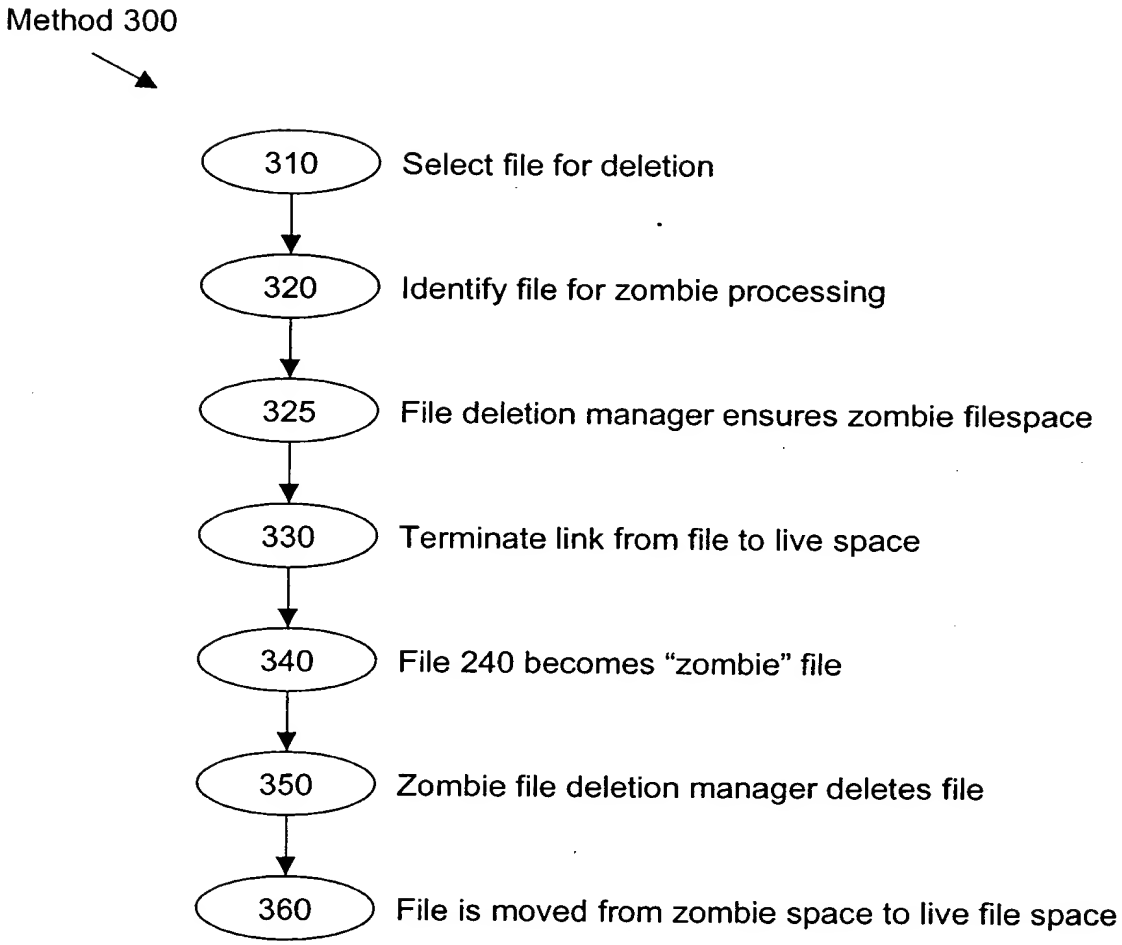
Method 300
310
Select file for deletion
320
Identify file for zombie processing
325
File deletion manager ensures zombie filespace
330
Terminate link from file to live space
340
File 240 becomes "zombie" file
350
Zombie file deletion manager deletes file
360
File is moved from zombie space to live file space

Fig. 3

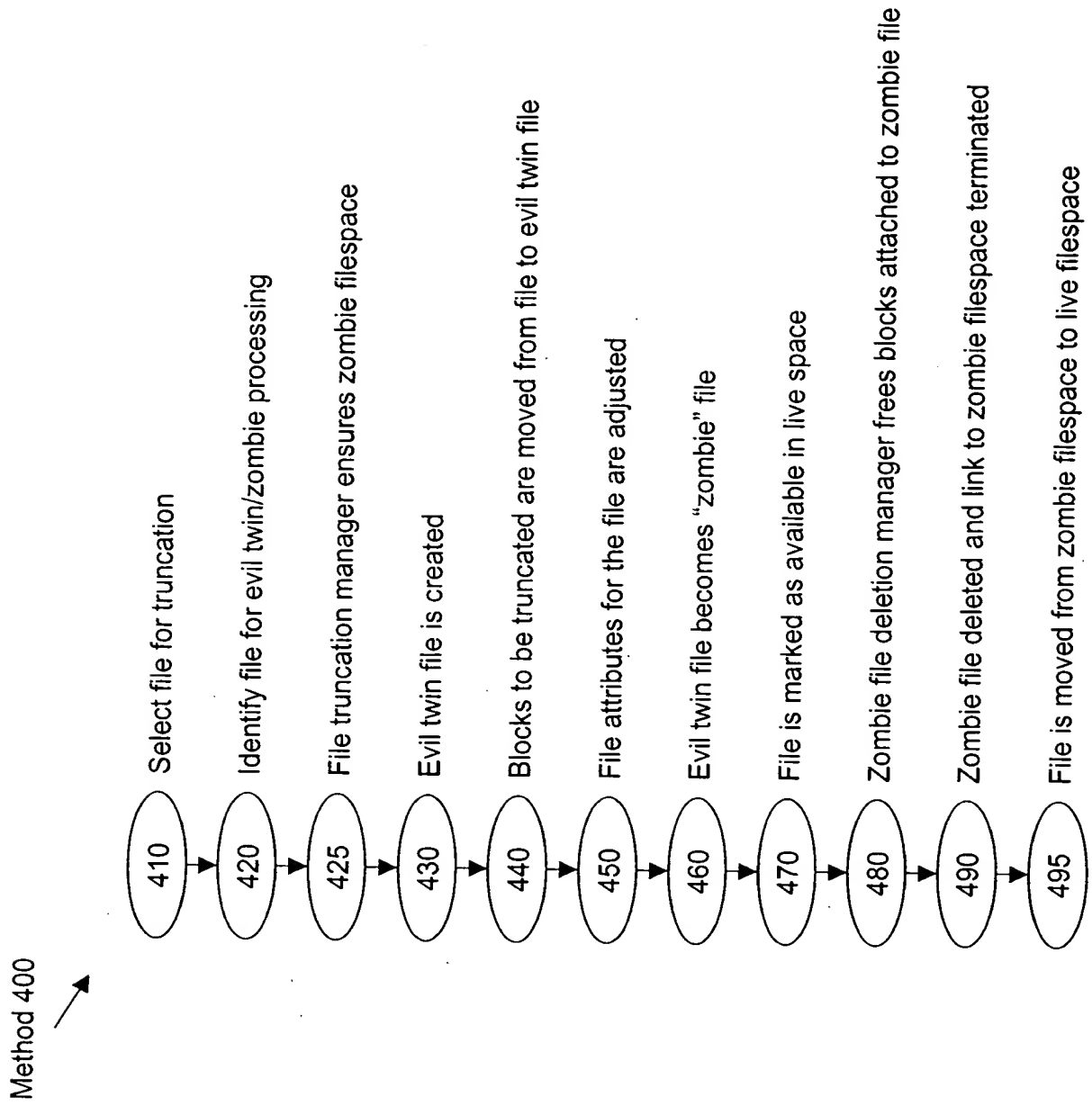
Method 400
410
Select file for truncation
420
Identify file for evil twin/zombie processing
425
File truncation manager ensures zombie filespace
430
Evil twin file is created
440
Blocks to be truncated are moved from file to evil twin file
450
File attributes for the file are adjusted
460
Evil twin file becomes "zombie" file
470
File is marked as available in live space
480
Zombie file deletion manager frees blocks attached to zombie file
490
Zombie file deleted and link to zombie filespace terminated
495
File is moved from zombie filespace to live filespace

Fig. 4

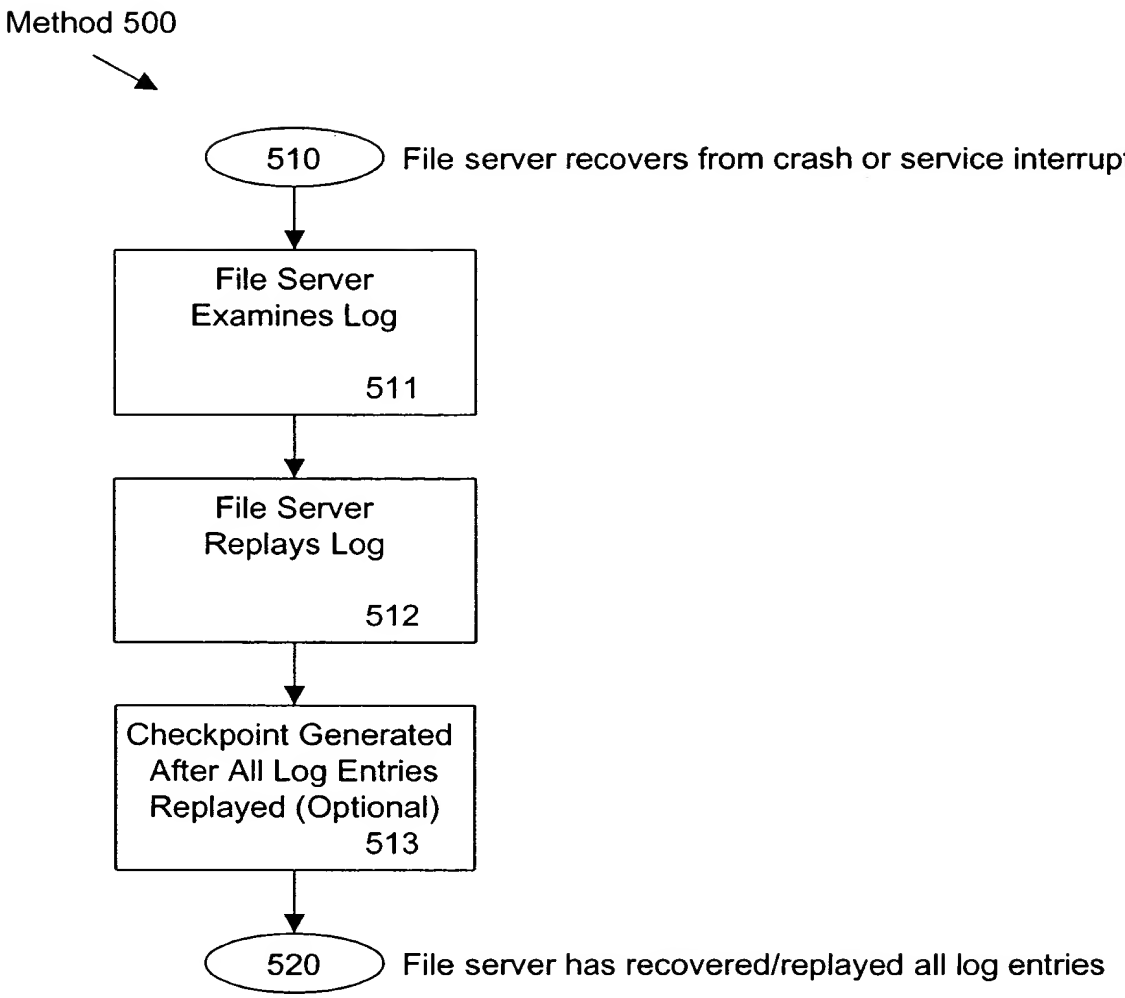
Method 500
510
File server recovers from crash or service interruption
File Server Examines Log
511
File Server Replays Log
512
Checkpoint Generated After All Log Entries Replayed (Optional)
513
520
File server has recovered/replayed all log entries

Fig. 5